printing the objects on a printing sheet in accordance with the stored raster data.

16.   (Amended) An image processing apparatus, comprising:

reconstructing means for reconstructing print data for instructing contents of objects positioned in one page in band units that are obtained by dividing the page into a plurality of regions;

converting means for converting the data reconstructed by said reconstructing means into page description language that is in a page description language for; and

transmitting means for transmitting the page description language data;

wherein the reconstructing means processes and distinguishes print data according to a type of print data and determines whether the objects are positioned across a plurality of the band units.

REMARKS

Claims 1-11 and 13-16 are pending in this application. By this Amendment, claim 12 is canceled and claims 1 and 13-16 are amended. No new matter is added.

The attached Appendix includes marked-up copies of each rewritten claim (37 C.F.R. §1.121(c)(1)(ii)).

Applicants appreciate the courtesies extended to Applicants' representative by Examiner Singh and Primary Examiner Field during the interview on March 11, 2003. Applicants' separate record of the substance of the interview is incorporated into the following remarks below.

In item 5, on page 2 of the Office Action, claims 1-6 , 8-10 and 16 were rejected under 35 U.S.C. §103(a) as being obvious over U.S. Patent 5,588,095 to Dennis et al. (hereinafter "Dennis"). The rejection is respectfully traversed.

As discussed during the interview, Dennis fails to disclose, teach or suggest the reconstructing means processes and distinguishes print data according to a type of the print data, and decides whether the band units to be reconstructed have common data, as recited in claim 1 and similarly recited in claim 16.

The Office Action alleges, on page 3, that Dennis discloses different shaped and graphical objects that require different reconstruction means. However, Applicants respectfully submit that the reconstruction means of Dennis does not process and <u>distinguish</u> between different types of print data. That is, Dennis merely discloses processing the metafile and converting <u>all</u> print objects, including different shapes and graphical objects into bandable print images for the <u>entire</u> page, rather than processing and distinguishing the print data according to a type of print data, as recited in claim 1 and similarly recited in claim 16.

Thus, Dennis fails to disclose, teach or suggest the reconstructing means processes and distinguishes print data according to a type of the print data, as recited in claim 1 and similarly recited in claim 16.

In Item 6, on page 7 of the Office Action, claim 7 was rejected under 35 U.S.C. §103(a) as being obvious over Dennis in view of U.S. Patent 5,859,956 to Sugiyama et al. (hereinafter "Sugiyama"). The rejection is respectfully traversed.

As discussed above, Dennis neither discloses nor suggests Applicants' claimed invention as found in claim 1, the independent claim from which the rejected claim depends, and thus Sugiyama fails to overcome the noted deficiencies of Dennis. Thus, it is respectfully requested the rejection be withdrawn.

In Item 7, on page 7 of the Office Action, claims 11-15 were rejected under 35 U.S.C. §103(a) as being obvious over Dennis in view of U.S. Patent 5,805,174 to Ramchandran. The rejection is respectfully traversed.

As similarly discussed above, Dennis fails to disclose or suggest the reconstructing means possessing and distinguishes print data according to a type of the print data, as recited in claims 14 and 15.

Further, Dennis and Ramchandran, individually or in combination, fail to disclose or suggest the raster converting means clips the raster data which allows the overflow of the band units to supply the raster data to the buffer, as recited in claim 13.

In particular, claim 13 is directed to an output apparatus that corresponds to the image device of claims 6 and 7 for processing data in a host server. Specifically, claim 6 is directed to when a character indicated by a character code is positioned across a plurality of band units, which is the same character code sent with the plurality of band units, respectively. That is, the same character code is transmitted repeatedly. Thus, the purpose of this processing is to transmit the character code to an output apparatus just as it is, preventing raster development of the character code in the host. Claim 7 is directed to when an image is positioned across a plurality of band units, which the image is divided into plurality of band units in such a manner that the band unit data includes data of portions to be printed in another band unit. The divided data is transmitted in the form of PDL data. That is, the image data of the respective band units is transmitted while overlapping with each other. The output apparatus performs an image processing, such as an interpolation with regard to the respective band unit, taking pixel data in the surrounding regions of the band unit data as references. Accordingly, there occurs a problem in which, when image data just fitted with the band unit is transmitted to the output apparatus as band unit data, the output apparatus cannot perform proper interpolation processing at boundary regions of the band unit. Thus, the claimed invention is employed in consideration of this problem.

Hence, claim 13 relates to data transmission in an output apparatus when image data is divided into band units. The data transmission is operated so that data of a band unit is sent

with attached data, which will not be printed in the band unit, but in another band unit. Thus, the data transmission is to <u>clip</u> the data to be printed in another band unit, as recited in claim 13.

Accordingly, Dennis and Ramchandran fail to disclose or suggest raster converting means clips the raster data which allows the overflow of the band units to supply the raster data to the buffer, as recited in claim 13.

For at least these reasons, Applicants respectfully submit that none of Dennis, Sugiyama or Ramchandran, nor any combination of these references, teaches, discloses or suggests all of the features recited in claims 1-11 and 13-16. Thus, the asserted combinations of Dennis, Sugiyama and Ramchandran fail to render obvious the subject matter of claims 1-11 and 13-16 under 35 U.S.C. §103(a). Withdrawal of the various rejections of claims 1-11 and 13-16 under 35 U.S.C. §103(a) as being unpatentable over the asserted combinations of Dennis, Sugiyama and Ramchandran is respectfully requested.

In view of the foregoing amendments and remarks, Applicants submit that this application is in condition for allowance. Favorable and prompt allowance of claims 1-11 and 13-16 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in better condition for allowance, the Examiner is invited to contact Applicants' undersigned representative at the telephone number set forth below.

Respectfully submitted,

James A. Oliff
Registration No. 27,075

David J. Cho
Registration No. 48,078

JAO:DXC/lrd

Attachment:
    Appendix

Date: April 23, 2003

OLIFF & BERRIDGE, PLC
P.O. Box 19928
Alexandria, Virginia 22320
Telephone: (703) 836-6400

DEPOSIT ACCOUNT USE
AUTHORIZATION
Please grant any extension
necessary for entry;
Charge any fee due to our
Deposit Account No. 15-0461

APPENDIX

Changes to Claims:

Claim 12 is cancelled.

The following is a marked-up version of the amended claims:

1. (Three Times Amended) An image processing apparatus, comprising:

reconstructing means for reconstructing print data for instructing contents of objects positioned in one page in band units that are obtained by dividing the page into a plurality of regions;

converting means for converting the data reconstructed by said reconstructing means into page description language data that is in a page description language form; and

transmitting means for transmitting the page description language data; wherein the reconstructing means decides, processes and distinguishes print data according to a type of the print data, and decides whether the band units to be reconstructed have common data.

13. (Amended) The output apparatus according to claim 12, wherein said An output apparatus having a structure in a page description language that corresponds to each object that is supplied in band units and obtained by dividing one page into a plurality of regions, comprising:

receiving means for receiving the page description language data;

raster converting means for converting the page description language data received by said receiving means into raster data;

a buffer for storing, in band units, the raster data converted by said raster converting means; and

a printing mechanism for printing the objects on a printing sheet in accordance with the raster data read from said buffer,

wherein the raster converting means processes the page description language data according to a type of command indicated by the page description language data, and the raster converting means clips the raster data ~~allowed to~~ which allows the overflow of the band units to supply the raster data to said buffer.

14.   (Three Times Amended) An image processing system, comprising:

an image processing apparatus including:

reconstructing means for dividing, in band units, print data that indicates contents of objects positioned in one page which is composed of a plurality of the bands and reconstructing print data in the band units,

converting means for converting the data reconstructed by said reconstructing means into page description language data that is in a page description language form, and

transmitting means for transmitting the page description language data,

wherein the reconstructing means ~~decides,~~ processes and distinguishes print data according to a type of the print data, and decides whether the band units to be reconstructed have common data; and

an output apparatus including:

receiving means for receiving the page description language data,

raster converting means for converting the page description language data received by said receiving means into raster data,

a buffer for storing, in the band units, the raster data converted by said raster converting means, and

a printing mechanism for printing the objects on a printing sheet in accordance with the raster data read from said buffer.

15.   (Three Times Amended) An image processing method for an image

processing system including an image processing apparatus and an output apparatus,

comprising:

dividing, in band units, print data that indicates contents of objects positioned

in one page which is composed of a plurality of the bands;

reconstructing the print data in the band units and distinguishing according to

a type of the print data, and deciding whether the band units to be reconstructed have

common data;

converting reconstructed data into page description language data in a page

description language form;

converting the page description language data into raster data;

storing, in the band units, the converted raster data; and

printing the objects on a printing sheet in accordance with the stored raster

data.

16.   (Amended) An image processing apparatus, comprising:

reconstructing means for reconstructing print data for instructing contents of

objects positioned in one page in band units that are obtained by dividing the page into a

plurality of regions;

converting means for converting the data reconstructed by said reconstructing

means into page description language that is in a page description language for; and

transmitting means for transmitting the page description language data;

wherein the reconstructing means processes and distinguishes print data

according to a type of print data and determines whether the objects are positioned across a

plurality of the band units.